



This listing of claims will replace all prior versions, and listings, of claims in the application:

Amendments to the Claims:

Claim 1 (currently amended) A pharyngoesophageal monitoring system, comprising:

- a. a first probe;
- b. a second probe adjacent said first probe;
- c. a first sensor arrangement configured at a position along said first probe;
- d. a second sensor arrangement configured at a position along said second probe;
- e. a slack portion in at least one of said probes and an adjustment element to which said probes are adjustably configurable; and
- f. a recorder responsive to said sensor arrangements;

wherein said recorder is capable of correlation of signals generated by said sensor arrangements.

Claim 2 (previously presented) A pharyngoesophageal monitoring system as described in claim 75 wherein said first and said second sensor arrangements each comprise at least one pH sensor.

Claim 3 (previously presented) A pharyngoesophageal monitoring system as described in claim 75 wherein said recorder is capable of correlation of signals comprising at least one type of signal selected from the group consisting of at least one pH signal, at least one time signal, at least one clearing time signal of a gastroesophageal reflux episode, and at least one user input signal.

Claim 4 (original) A pharyngoesophageal monitoring system as described in claim 3 wherein said at least one user input signal comprises at least one event marker, said at least one event marker selected from the group consisting of at least one heartburn marker, at least one pain marker, at least one eating marker, at least one lying down marker, at least one sleeping marker, and at least one belching marker.

Claims 5-6 (cancelled)

- Claim 7 (previously presented) A pharyngoesophageal monitoring system as described in claim 75 further comprising at least one display device responsive to said at least one microprocessor.
- Claim 8 (currently amended) A pharyngoesophageal monitoring system as described in claim 75 wherein said recorder comprises a user input.
- Claim 9 (cancelled)
- Claim 10 (previously presented) A pharyngoesophageal monitoring system as described in claim 1 wherein said first and second probes extend separately from a common connection.
- Claim 11 (original) A pharyngoesophageal monitoring system as described in claim 1 further comprising a third sensor arrangement configured at a position along said second probe.
- Claim 12 (original) A pharyngoesophageal monitoring system as described in claim 11 wherein said third sensor arrangement comprises at least one pH sensor.
- Claim 13 (previously presented). A pharyngoesophageal monitoring system as described in claim 11 wherein said second sensor arrangement is configured at a position relative to said third sensor arrangement that accommodates positioning of said second sensor and said third sensor in opposing pharyngoesophageal portions proximate an upper esophageal sphincter of an individual.
- Claim 14 (previously presented). A pharyngoesophageal monitoring system as described in claim 13 wherein said first sensor arrangement is adjustably configured to be locatable at a position corresponding to an esophageal portion of an individual.
- Claim 15 (previously presented). A pharyngoesophageal monitoring system as described in claim 14 wherein first sensor arrangement is adjustably configured to be locatable at a position corresponding to a position proximate a lower esophageal sphincter of an individual.
- Claim 16 (previously presented). A pharyngoesophageal monitoring system as described in claim 15 wherein said first probe is adjustably configurable in a

manner that enables said first sensor to be set at a position approximately 5 centimeters above a lower esophageal sphincter of an individual.

Claim 17 (previously presented). A pharyngoesophageal monitoring system as described in claim 15 wherein said first sensor arrangement is configured at a position of about 5 centimeters from a distal end of said first probe.

Claim 18 (original). A pharyngoesophageal monitoring system as described in claim 13 wherein said second sensor arrangement is configured at a distance of about 7 centimeters from said third sensor arrangement.

Claim 19 (currently amended). A pharyngoesophageal monitoring system as described in ~~claims claim 1 and or~~ 13 wherein said first and said second sensor arrangements are adjustably configured at positions corresponding to an esophageal portion of an individual.

Claim 20 (currently amended) A pharyngoesophageal monitoring system as described in ~~claims claim 1 and or~~ 13 wherein said first and said second sensor arrangements are adjustably configured at positions corresponding to an pharyngoesophageal portion of an individual.

Claim 21 (original). A pharyngoesophageal monitoring system as described in claim 1 wherein said first sensor arrangement is configured at a substantially distal end of said first probe.

Claim 22 (original). A pharyngoesophageal monitoring system as described in claims 1 or 21 wherein said second sensor arrangement is configured at a substantially distal end of said second probe.

Claim 23 (original). A pharyngoesophageal monitoring system as described in claim 1 wherein at least one probe comprises a stabilizer element.

Claim 24 (original). A pharyngoesophageal monitoring system as described in claim 23 wherein said stabilizer element comprises a stabilizer section configured at a distal end of said at least one probe.

Claim 25 (previously presented). A pharyngoesophageal monitoring system as described in claim 1 wherein at least one probe is adjustably configurable to

enable setting the sensor arrangement on said at least one probe at a desired position in spatial relation to a upper esophageal sphincter of an individual.

Claim 26 (previously presented). A pharyngoesophageal monitoring system as described in claim 1 wherein at least one probe is adjustably configurable to enable setting the sensor arrangement on said at least one probe at a desired position in spatial relation to a lower esophageal sphincter of an individual.

Claim 27 (previously presented) A pharyngoesophageal monitoring system as described in claim 1 wherein one of said first and second probes is adjustably configurable to enable setting the sensor arrangement on said one of said first and second probes at a desired position in spatial relation to a upper esophageal sphincter of an individual and the other probe is adjustably configurable to enable setting the sensor arrangement on said other probe at a desired position in relation to a lower esophageal sphincter of an individual.

Claim 28 (canceled)

Claim 29 (previously presented) A pharyngoesophageal monitoring system as described in claim 1 wherein said adjustment element comprises a clamp.

Claim 30 (canceled)

Claim 31 (canceled)

Claim 32 (currently amended) A pharyngoesophageal monitoring system , comprising:

- a. a first probe;
- b. a second probe adjacent said first probe;
- c. a first sensor arrangement configured at a position along said first probe;
- d. a second sensor arrangement configured at a position along said second probe; and
- e. a recorder responsive to said sensor arrangements;

wherein said recorder is capable of correlating signals generated by said sensor arrangements; and wherein at least one of said probes ~~comprise an adjustment comprises a slack portion to which at least one of said probes are~~

~~adjustably configurable~~that accommodates spatial adjustment of the first and second sensor arrangements in relation to each other.

Claim 33-39 (cancelled)

Claim 40 (previously presented). A pharyngoesophageal monitoring catheter as described in claim 75, further comprising at least a third sensor arrangement configurationally associated with at least one of said first and said second sensor arrangements, and wherein said multiplexer is also configured to receive signals from said third sensor arrangement simultaneously with the signals from the first and second sensor arrangements and to synchronize transmission of said signals from said first, second, and third sensor arrangements at a predetermined data sample rate to the microprocessor.

Claim 41 (cancelled)

Claim 42 (currently amended). A method of pharyngoesophageal monitoring, comprising:

- a. inserting a first probe having a first sensor arrangement at least partially within at least a first portion of a pharyngoesophageal passage;
- b. inserting a second probe having a second sensor arrangement at least partially within at least a second portion of a pharyngoesophageal passage;
- c. adjustably configuring at least one of the probes corresponding to a selected part of an esophagus of an individual by taking up slack of at least a portion of at ~~least~~ least one of the probes;
- d. sensing at least one characteristic of said first portion;
- e. generating at least one signal representative of said at least one characteristic of said first portion;
- f. sensing at least one characteristic of said second portion;
- g. generating at least one signal representative of said at least one characteristic of said second portion;
- h. receiving said signals representative of said characteristics of said first and second portions at a recorder;

- i. correlating said received signals representative of said characteristics with said recorder; and
- j. monitoring a correlation of received signals representative of said characteristics.

Claim 43 (previously presented). A method of pharyngoesophageal monitoring as described in claim 42 further comprising sensing at least one characteristic of at least a third portion of a pharyngoesophageal passage with a third sensor arrangement at least partially within said at least third portion.

Claim 44 (previously presented). A method of pharyngoesophageal monitoring as described in claim 42 wherein said receiving said signals comprises integratively receiving said signals representative of said characteristics of said first and second portions at said recorder.

Claim 45 (previously presented). A method of pharyngoesophageal monitoring as described in claims 42 or 43 wherein said sensing comprises sensing at least one pH of said respective portions.

Claim 46 (previously presented). A method of pharyngoesophageal monitoring as described in claims 42 or 43 further comprising receiving at least one signal selected from the group consisting of a time signal, a clearing time signal of a gastroesophageal reflux episode, and a user input signal.

Claim 47 (original). A method of pharyngoesophageal monitoring as described in claim 46 wherein said user input signal comprises at least one event marker, said at least one event marker selected from the group consisting of a heartburn marker, a pain marker, an eating marker, a lying down marker, a sleeping marker, and a belching marker.

Claim 48 (previously presented). A method of pharyngoesophageal monitoring as described in claim 45 further comprising receiving at least one signal selected from the group consisting of a time signal, a clearing time signal of a gastroesophageal reflux episode, and a user input signal.

Claim 49 (original). A method of pharyngoesophageal monitoring as described in claim 48 wherein said user input signal comprises at least one event marker, said

at least one event marker selected from the group consisting of a heartburn marker, a pain marker, an eating marker, a lying down marker, a sleeping marker, and a belching marker.

Claim 50 (previously presented). A method of pharyngoesophageal monitoring as described in claim 46 wherein said correlating said received signals comprises correlating said signals representative of said characteristics and said at least one signal selected from the group consisting of a time signal, a clearing time signal of a gastroesophageal reflux episode, and a user input signal.

Claim 51 (original). An ambulatory record of data representative of gastroesophageal refluxate produced by the method described in claim 50.

Claim 52 (original). An ambulatory record of data representative of gastroesophageal refluxate disease produced by the method described in claim 50.

Claim 53 (previously presented). A method of pharyngoesophageal monitoring as described in claim 48 wherein said correlating said received signals comprises correlating said signals representative of said characteristics and said at least one signal selected from the group consisting of a time signal, a clearing time signal of a gastroesophageal reflux episode, and a user input signal.

Claim 54 (original). An ambulatory record of data representative of gastroesophageal refluxate produced by the method described in claim 53.

Claim 55 (original). An ambulatory record of data representative of gastroesophageal refluxate disease produced by the method described in claim 53.

Claim 56 (currently amended). An ambulatory record of data representative of gastroesophageal refluxate produced by the method described in claim 42.

Claim 57 (original). An ambulatory record of data representative of gastroesophageal refluxate disease produced by the method described in claim 42.

Claim 58 (previously presented). A method of pharyngoesophageal monitoring as described in claim 42 wherein said inserting said first and second probes are performed substantially simultaneously.

Claim 59 (previously presented). A method of pharyngoesophageal monitoring as described in claim 42 wherein said inserting a second probe comprises inserting

a second probe having a third sensor arrangement at least partially within at least a third portion of a pharyngoesophageal passage and further comprising:

- a. sensing at least one characteristic of said third portion;
- b. generating at least one signal representative of said at least one characteristic of said third portion; and
- c. receiving said signals representative of said characteristics of said first, second and third portions at said recorder.

Claim 60 (previously presented). A method of pharyngoesophageal monitoring as described in claim 42 wherein said ~~step of~~ inserting a second probe having a second sensor arrangement at least partially within at least a second portion of a pharyngoesophageal passage comprises inserting said second probe such that said second sensor arrangement is positioned proximate a upper esophageal sphincter of an individual.

Claim 61 (original). A method of pharyngoesophageal monitoring as described in claim 60 wherein said second portion corresponds to a pharyngoesophageal portion proximate a upper esophageal sphincter of an individual.

Claim 62 (previously presented). A method of pharyngoesophageal monitoring as described in claim 60 wherein said inserting a second probe comprises inserting a second probe having a third sensor arrangement at least partially within at least a third portion of a pharyngoesophageal passage and further comprising:

- a. sensing at least one characteristic of said third portion;
- b. generating at least one signal representative of said at least one characteristic of said third portion; and
- c. receiving said signals representative of said characteristics of said first, second and third portions at said recorder.

Claim 63 (original). A method of pharyngoesophageal monitoring as described in claim 62 wherein said second and third portions correspond to opposing pharyngoesophageal portions proximate a upper esophageal sphincter of an individual.

- Claim 64 (previously presented). A method of pharyngoesophageal monitoring as described in claims 59 or 63 further comprising the step of configuring said second sensor arrangement a distance of about 7 centimeters from said third sensor arrangement.
- Claim 65 (previously presented). A method of pharyngoesophageal monitoring as described in claims 42, 60 or 63 wherein said inserting a first probe having a first sensor arrangement at least partially within at least a first portion of a pharyngoesophageal passage comprises inserting said first probe such that said first sensor arrangement is positioned proximate a lower esophageal sphincter of an individual.
- Claim 66 (previously presented). A method of pharyngoesophageal monitoring as described in claim 65 wherein said inserting said first probe such that said first sensor arrangement is positioned proximate a lower esophageal sphincter of an individual comprises positioning said first sensor arrangement about 5 centimeters above the lower esophageal sphincter.
- Claim 67 (original). A method of pharyngoesophageal monitoring as described in claim 64 wherein said first portion corresponds to a pharyngoesophageal portion proximate a lower esophageal sphincter of an individual.
- Claim 68 (previously presented). A method of pharyngoesophageal monitoring as described in claim 42 further comprising stabilizing at least one probe within a pharyngoesophageal passage.
- Claim 69 (previously presented). A method of pharyngoesophageal monitoring as described in claim 68 wherein said stabilizing is provided at a distal end of said at least one probe.
- Claim 70 (previously presented). A method of pharyngoesophageal monitoring as described in claims 42 or 44 further comprising adjustably configuring at least one probe corresponding to a upper esophageal sphincter of an individual.
- Claim 71 (previously presented). A method of pharyngoesophageal monitoring as described in claim 42 or 44 further comprising adjustably configuring at least one probe corresponding to a lower esophageal sphincter of an individual.

Claim 72 (previously presented). A method of pharyngoesophageal monitoring , comprising:

- a. inserting a first probe having a first sensor arrangement at least partially within at least a first portion of a pharyngoesophageal passage;
- b. inserting a second probe having a second sensor arrangement at least partially within at least a second portion of a pharyngoesophageal passage;
- c. adjustably configuring at least one probe corresponding to a selected part of an esophagus of an individual by taking up slack of at least a portion of at least one probe;
- d. sensing at least one characteristic of said first portion;
- e. generating at least one signal representative of said at least one characteristic of said first portion;
- f. sensing at least one characteristic of said second portion;
- g. generating at least one signal representative of said at least one characteristic of said second portion;
- h. receiving said signals representative of said characteristics of said first and second portions at a recorder;
- i. correlating said received signals representative of said characteristics with said recorder; and
- j. monitoring a correlation of received signals representative of said characteristics..

Claims 73-74 (cancelled)

Claim 75 (currently amended) A pharyngoesophageal monitoring system, comprising:

a first elongated probe with a first sensor arrangement and a second elongated probe with a second sensor arrangement, wherein both of said probes ~~extend from a common connector~~ are sized and shaped for insertion side-by-side into a person's pharynx and esophagus in a manner that enables the first sensor arrangement on the first probe to be positioned in adjustable spatial relationship

to the second sensor arrangement on the second probe; and a recorder that is connectable to the ~~common connector-probes~~ and comprises a multiplexer circuit configured to receive the signals from both the first sensor and the second sensor simultaneously and to synchronize transmission of said signals from said first and second sensor arrangements at a predetermined data sample rate, a timer circuit, and a microprocessor configured to receive the synchronized transmission of signals from the multiplexer and to store the signals on a common real time line according to timing provided by the timer circuit so that data obtained from both the first and second sensors can be processed and displayed on a common real time line without having to splice together such data from separately obtained time lines.

Claim 76 (currently amended) A method of pharyngoesophageal monitoring, comprising:

extending at least two flexible probes, each of which has a sensor element, ~~from a common connector~~ into a person's pharynx and esophagus;

adjusting one of the probes longitudinally in relation to the other probe in order to position the respective sensor elements in a desired spatial relationship to each other and to the person's pharynx and esophagus;

connecting a recorder to the ~~connector-probes~~ to receive signals from the respective sensor elements simultaneously, multiplexing the received signals ~~for~~⁵ for synchronized transmission at a predetermined data sample rate to a microprocessor, and processing and storing data derived from the signals from both sensor elements with timing inputs from a common timer circuit for storage and display so that data obtained from both of the sensor elements can be plotted versus time on a common time line without having to splice together such data from separately originated time lines.

Claim 77 (currently amended) The method of claim 76, including ~~correlating the signals and the timing inputs with~~ receiving and processing user inputs ~~for storage, display, and transmissions of event markers with timing inputs from said common timer circuit so that such event markers can also be plotted versus time~~

on said common time line without having to splice such event markers from separately originated time lines together with the data obtained from the sensor elements.

Claim 78 (new) The method of claim 77, wherein said user inputs include an event marker that is indicative of pain.

Claim 79 (new) The method of claim 77, wherein said user inputs include an event marker that is indicative of cough.

Claim 80 (new) The method of claim 77, wherein said user inputs include an event marker that is indicative of meals.

Claim 81 (new) The method of claim 77, wherein said user inputs include an event marker that is indicative of recumbent position.

Claim 82 (new) The method of claim 77, wherein said user inputs include an event marker that is indicative of belching.

Claim 83 (new) The method of claim 77, wherein said user inputs include an event marker that is indicative of sleeping.

Claim 84 (new) The method of claim 77, wherein said user inputs include an event marker that is indicative of heartburn.